

WHAT IS CLAIMED IS:

1. A multifunctional integrated gas component unit, comprising:

a first gas component;

5 a second gas component; and

a connector coupling said first gas component to said second gas component such that said first and second gas components are stacked vertically; and wherein said multifunctional gas component unit is operable to mount on a modular base.

10

2. The multifunctional integrated gas component unit of claim 1, wherein said connector is a connector chosen from the group comprising a VCR connector, a Butt weld connector, and a Swagelock connector, and further wherein said multifunctional gas component unit is mounted on said modular base using a connector which meets SEMI Draft Doc. 2787.

15

20 3. The multifunctional integrated gas component unit of claim 1, wherein said first and second gas components can include any of a gas filter, gas purifier, moisture monitor, gauge, valve, diffuser, capacitance diaphragm gauge, pressure transducer, and pressure regulator.

25

4. The multifunctional integrated gas component unit of claim 1, wherein said first gas component is a pressure transducer and wherein said second gas component is a gas filter.

5

5. The multifunctional integrated gas component unit of claim 1, wherein said first and second gas components are coupled in such a way to comply with SEMI Draft Doc. 2787.

10

6. The multifunctional integrated gas component unit of claim 2, wherein said first and second gas components may be coupled using two C-seals, two B-seals, two CS-seals, two W-seals, or two Z-seals, and further wherein said multifunctional gas component unit can be mounted to said modular base using a C-seal, B-seal, CS-seal, W-seal, or Z-seal.

15

7. The multifunctional integrated gas component unit of claim 1, wherein said multifunctional integrated gas component further comprises a third vertically stacked gas component.

20

8. The multifunctional integrated gas component unit of claim 1, wherein said first and second gas components can be integrated in an in-line fashion by mounting said first gas component on said modular base,

25

and connecting said second gas component within said modular base.

5 9. An integrated modular pressure
transducer/filter apparatus comprising:
 a filter section;
 a pressure transducer section coupled to said
filter section; and
 a connector operable to connect said pressure
10 transducer section to said filter section, and wherein
said integrated modular pressure transducer/filter
apparatus is operable to mount to a modular base.

15 10. The apparatus of claim 9, wherein said
connector is a VCR connector, said VCR connector
including a male VCR connection and a female VCR
fitting.

20 11. The apparatus of claim 9, wherein said filter
section includes a gas filter, a membrane, a C-seal, an
input port, an output port, and said male VCR
connection, and wherein said C-seal is welded to said
filter section at a first weld and said male VCR
connection is welded to said filter section at a second
25 weld, and further wherein said filter section can be
coupled to said modular base using a C-seal connector.

12. The apparatus of claim 11, wherein said disk
membrane lays across said filter section opening
between said C-seal and said filter section to provide
a filtering function, further wherein said disk
5 membrane has a log reduction value (LRV) of equal to or
greater than four LRV.

13. The apparatus of claim 11, wherein said disk
membrane can be comprised of teflon, stainless steel,
10 nickel, or ceramic, further wherein said disk membrane
can be attached to the body of said filter section with
a third weld around the outer circumference of said
disk membrane.

14. A method of integrating a gas component unit,
15 comprising the steps of:

coupling a first gas component to a second gas
component such that said first and second gas
components are stacked vertically with respect to a gas
20 flow path; and

mounting said gas component unit to a modular
base.

15. The method of claim 14, wherein said coupling
25 of said first and second gas components is done using a
VCR connector, a Buttweld connector, or a Swagelock
connector, and wherein mounting said multifunctional

gas component unit on said modular base is done using a connector which meets the SEMI Draft Doc. 2787.

5 16. The method of claim 14, wherein said first and second gas components include gas filters, gas purifiers, moisture monitors, gauges, valves, diffusers, capacitance diaphragm gauges, pressure transducers, and pressure regulators.

10 17. The method of claim 16, wherein said first gas component is a pressure transducer and said second gas component is a gas filter, and further comprising the step of coupling said pressure transducer to said gas filter using a modular connector.

15 18. The method of claim 17, wherein said modular connector is a VCR connector, said VCR connector comprising a male VCR connection and a female VCR fitting.

20 19. The method of claim 17, wherein said gas filter includes a membrane, an input port, an output port, and said male VCR connection, wherein said mounting to a modular base further comprises welding a
25 C-seal to said gas filter at a first weld and welding said male VCR connection to said gas filter at a second

weld, further wherein said gas filter can be coupled to said modular base using said C-seal.

20. The method of claim 19 further comprising the
5 step of positioning said membrane across said gas filter at an opening between said C-seal and said gas filter, further wherein said disk membrane has a log reduction value (LRV) of equal to or greater than four LRV.

10

21. The method of claim 19 further comprising the step of attaching said membrane to said gas filter using a third weld around the outer circumference of said disk membrane, and wherein said disk membrane can
15 be comprised of teflon, stainless steel, nickel, or ceramic.

22. The method of claim 14 further comprising the step of coupling said first and second gas components
20 in such a way to comply with SEMI Draft Doc. 2787.

23. The method of claim 15 further comprising the steps of:

coupling said first gas component to said second
25 gas component using two C-seals, two B-seals, two CS-seals, two W-seals, or two Z-seals; and

mounting said gas component unit to said modular base using a C-seal, B-seal, CS-seal, W-seal, or Z-seal.

5 24. The method of claim 14, further comprising vertically stacking a third gas component.

10 25. The method of claim 14 further comprising the step of coupling said first gas component to said second gas component in an in-line fashion by mounting said first gas component on said modular base and positioning said second gas component within said modular base.

15 26. A method for manufacturing a modular gas stick, comprising the steps of:

coupling a first gas component to a modular base; and

20 vertically stacking a second component on top of said first gas component and coupling said first gas component to said second gas component using a first connector.

25 27. The method of claim 26, further comprising vertically stacking a third gas component on top of said second gas component and coupling said third gas

component to said second gas component using a second connector.

28. The method of claim 26, wherein said first
5 and second gas components include gas filters, gas purifiers, moisture monitors, gauges, valves, diffusers, capacitance diaphragm gauges, pressure transducers, and pressure regulators.

10 29. The method of claim 26, further comprising the step of integrating a pressure transducer and a gas filter to form a modular, integrated pressure transducer/filter integrated unit comprising:

a filter section;
15 a pressure transducer section; and
a modular connection operable to connect said pressure transducer section to said filter section.

20 30. The method of claim 26, wherein said modular connection is a VCR connector, said VCR connector comprising a male VCR connection and a female VCR fitting.

25 31. The method of claim 30, wherein said filter section comprises a gas filtering section, a membrane, a C-seal, an input port, an output port, and said male VCR connection, said C-seal welded to said gas filter

at a first weld and said male VCR connection welded to said gas filter at a second weld, further wherein said filter section can be coupled to a modular base using C-seal connectors.